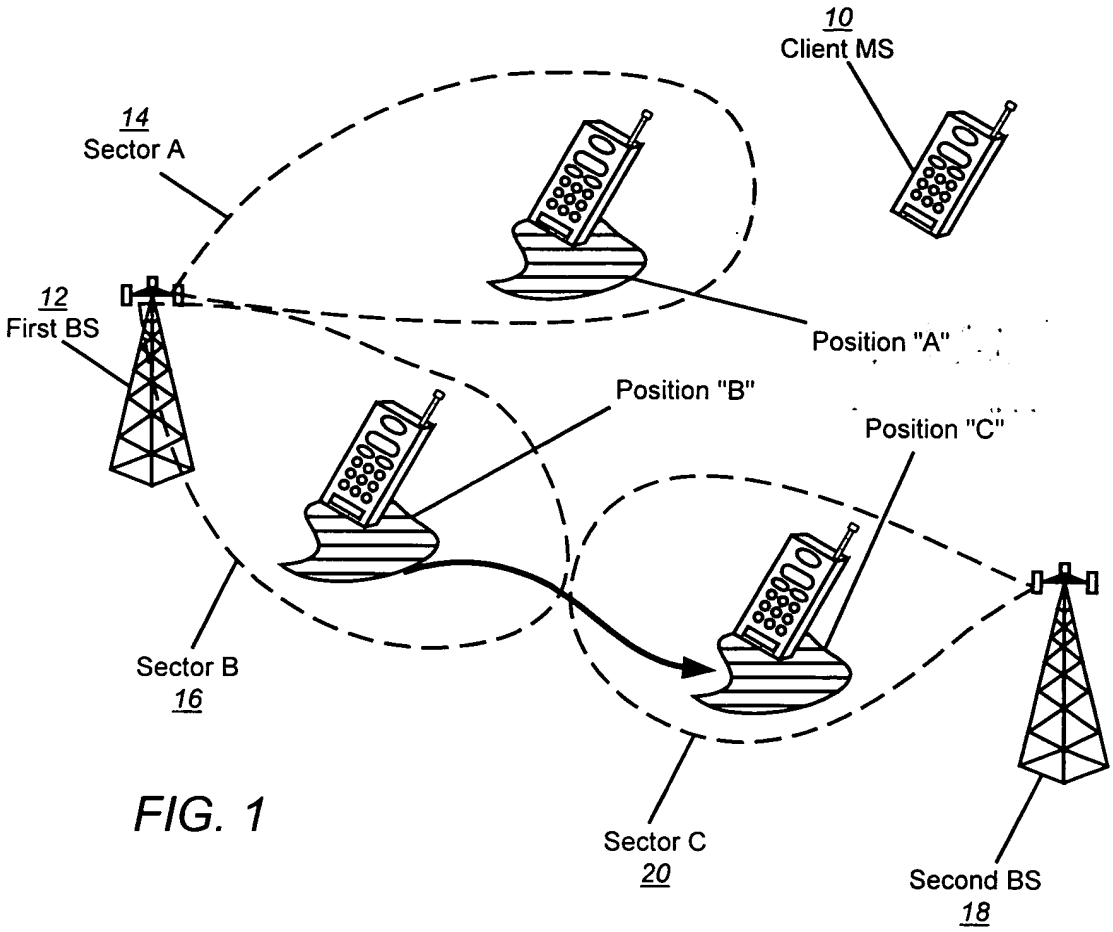
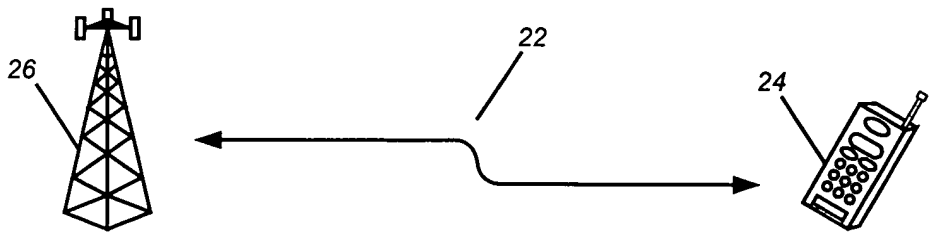


FIG. 1



Forward Link
- Pilot Channel(s)
- Sync Channel
- Paging Channel(s)
- Traffic Channels

Reverse Link
- Control Channel(s)
- Access Channel
- Traffic Channel(s)

FIG. 2

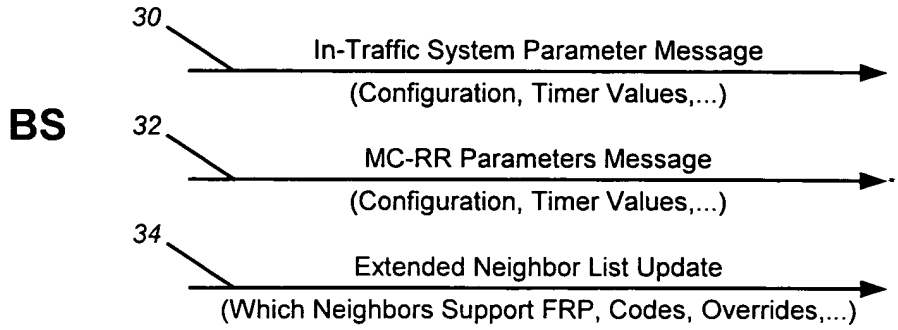

30
In-Traffic System Parameter Message
(Configuration, Timer Values,...)
BS
32
MC-RR Parameters Message
(Configuration, Timer Values,...)
MS
34
Extended Neighbor List Update
(Which Neighbors Support FRP, Codes, Overrides,...)

FIG. 3

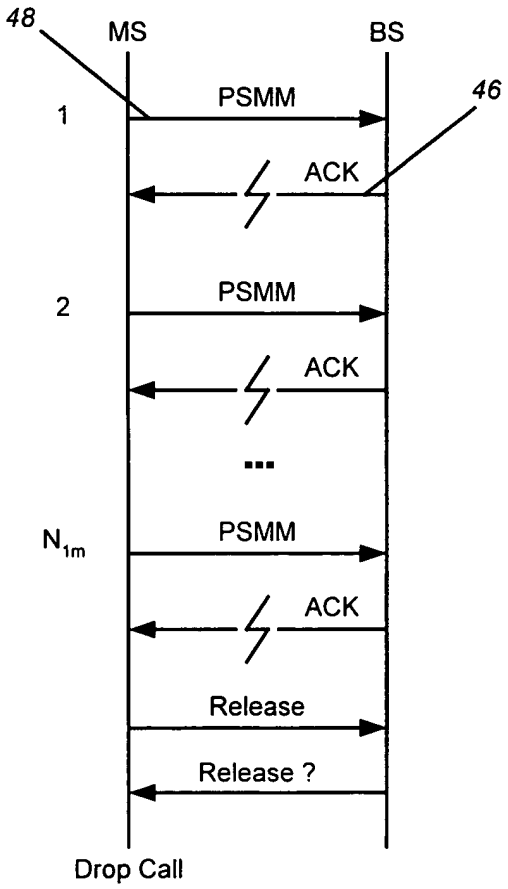

48
MS
BS
1
PSMM
46
ACK
2
PSMM
ACK
...
N1m
PSMM
ACK
Release
Release ?
Drop Call

FIG. 5

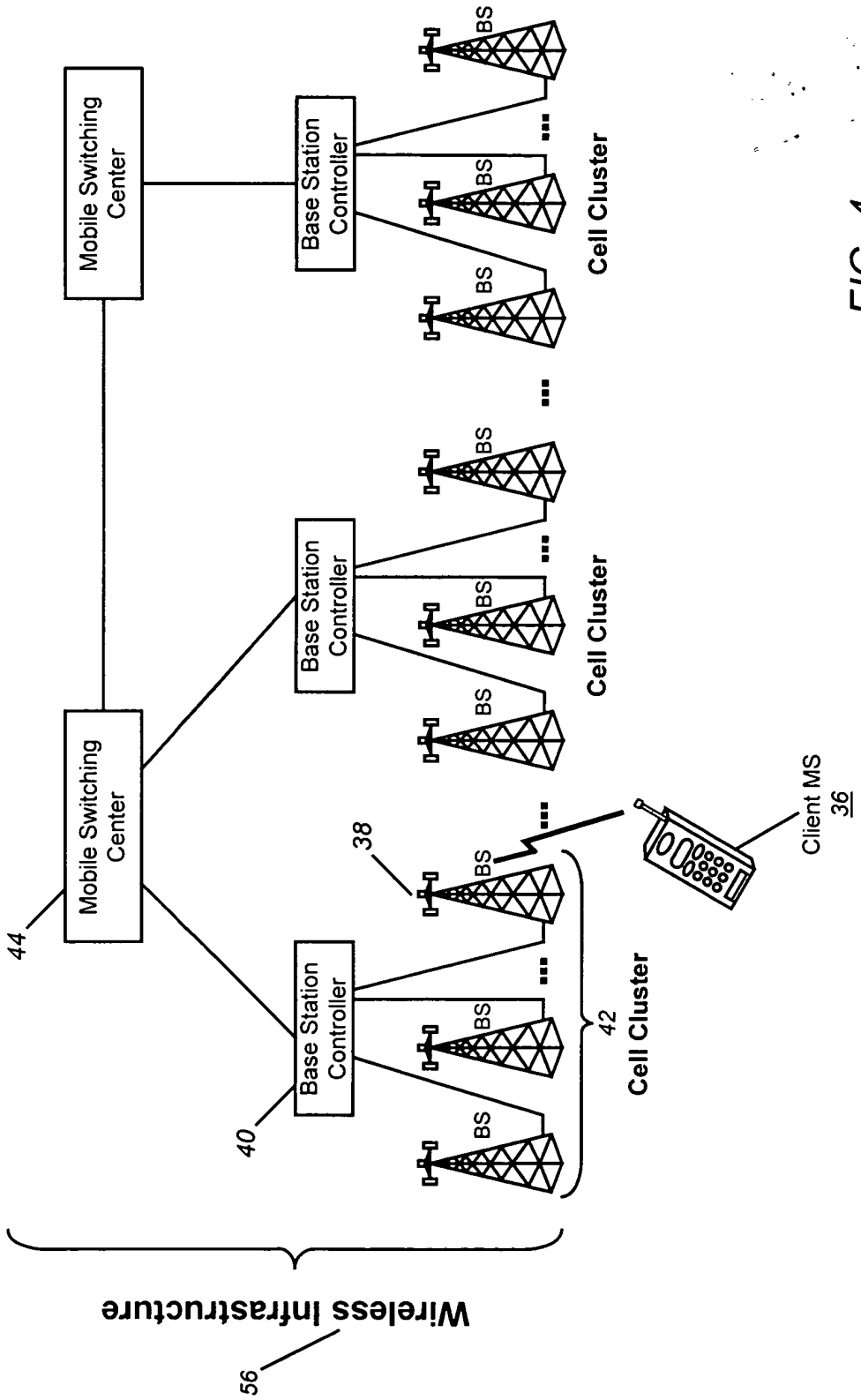

Wireless Infrastructure
56
Mobile Switching Center
44
Mobile Switching Center
Base Station Controller
40
Base Station Controller
Base Station Controller
Base Station Controller
BS
38
Cell Cluster
42
Cell Cluster
Cell Cluster
Client MS
36

FIG. 4

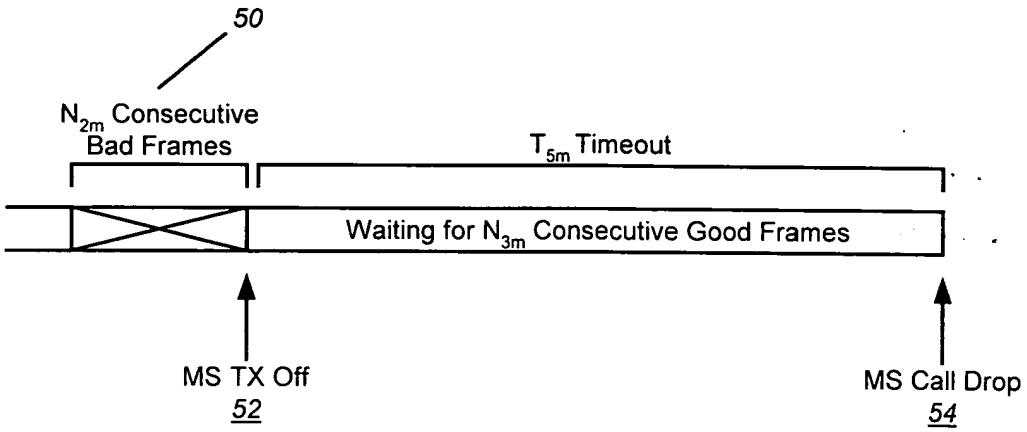

50
N_{2m} Consecutive Bad Frames
T_{5m} Timeout
Waiting for N_{3m} Consecutive Good Frames
MS TX Off
52
MS Call Drop
54

FIG. 6

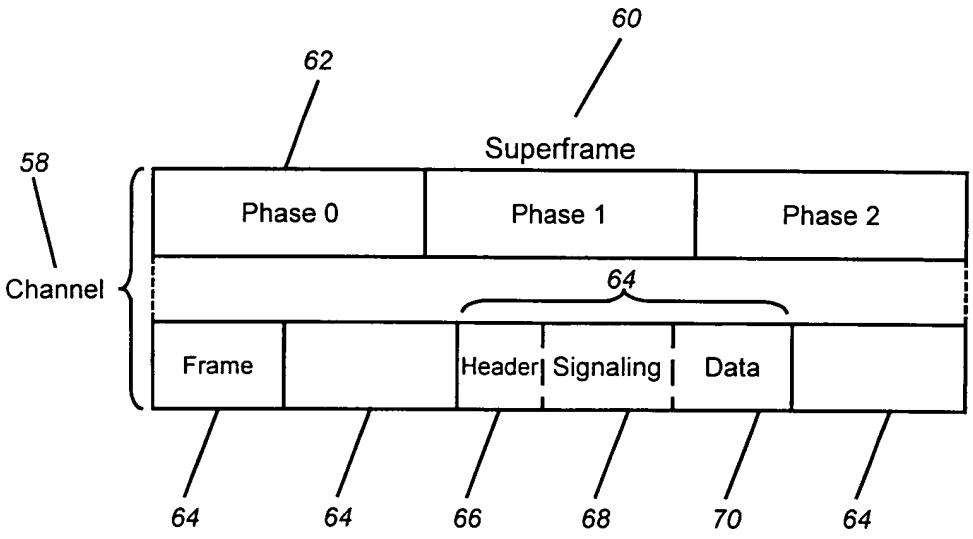

60
62
Superframe
58
Phase 0
Phase 1
Phase 2
64
Channel
Frame
Header
Signaling
Data
64
64
66
68
70
64

FIG. 7

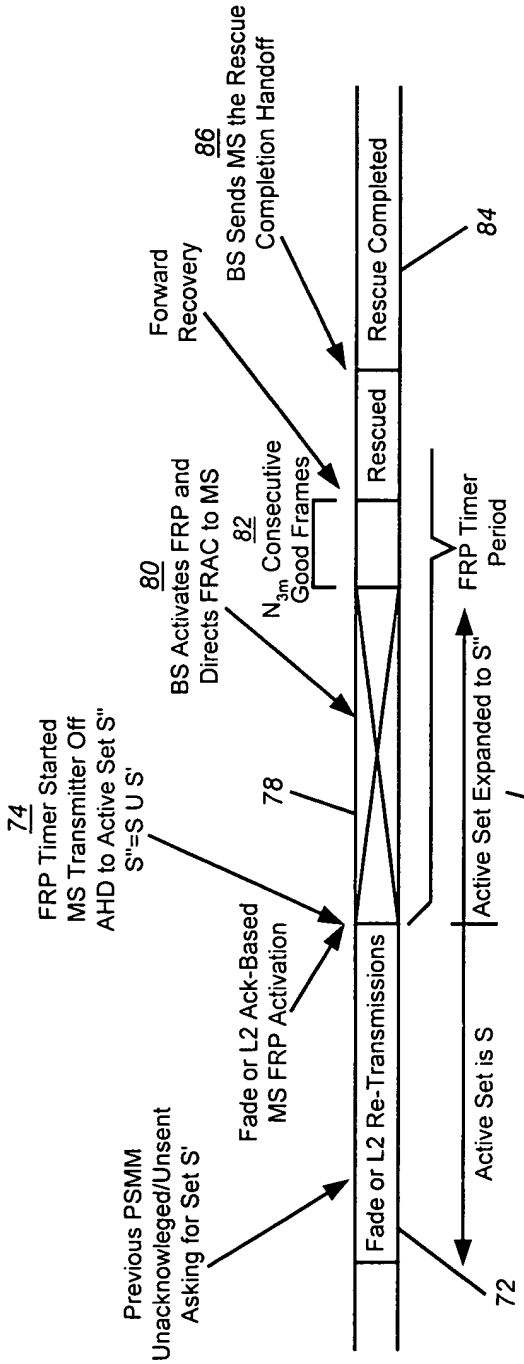

Previous PSMM Unacknowleged/Unsent Asking for Set S'
Fade or L2 Re-Transmissions
Active Set is S
72
Fade or L2 Ack-Based MS FRP Activation
FRP Timer Started MS Transmitter Off AHD to Active Set S" S"=S U S'
74
78
Active Set Expanded to S"
FRP Timer Period
76
BS Activates FRP and Directs FRAC to MS
80
N_{3m} Consecutive Good Frames
82
Rescued
Forward Recovery
BS Sends MS the Rescue Completion Handoff
86
Rescue Completed
84

FIG. 8

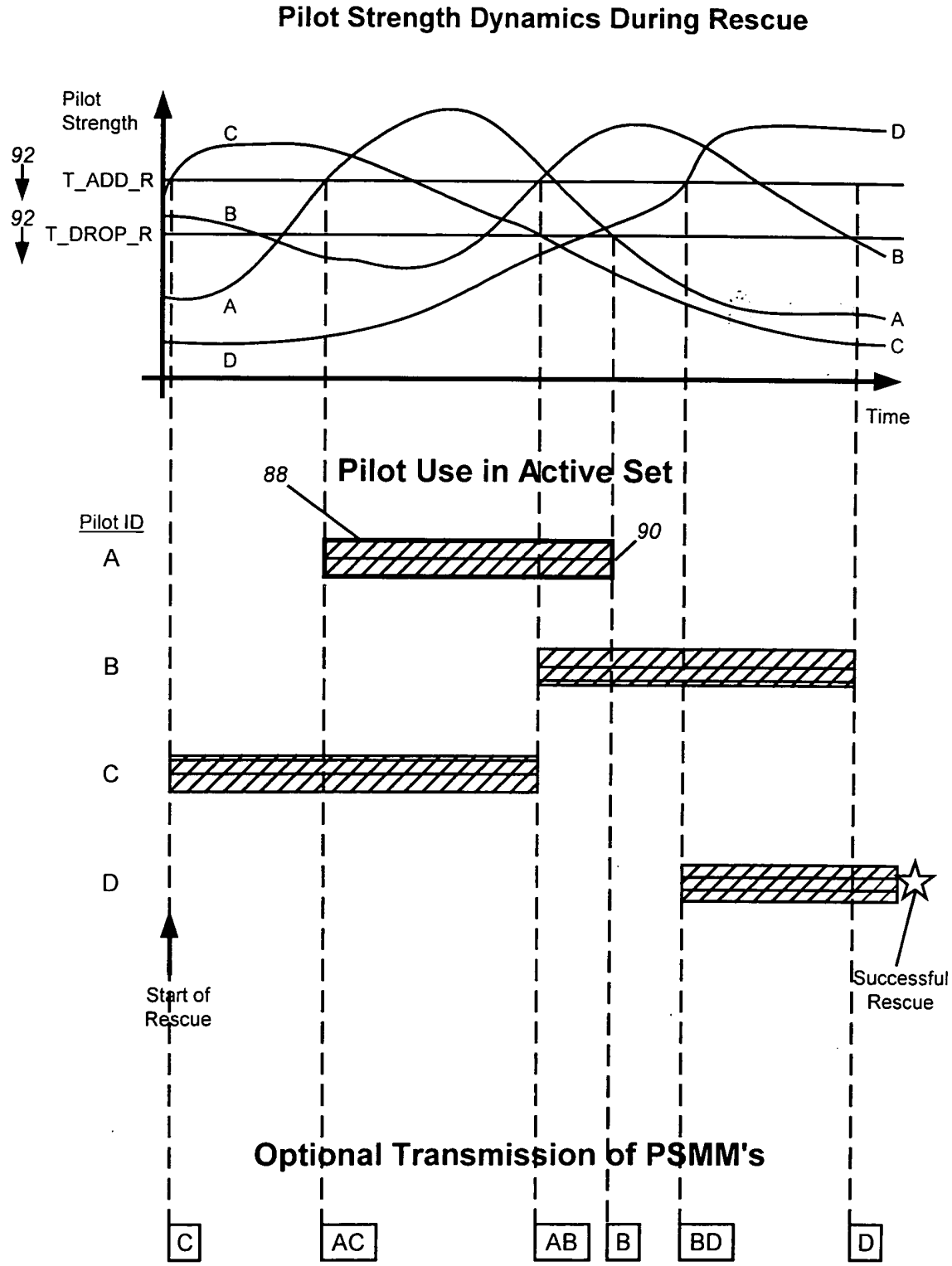

Pilot Strength Dynamics During Rescue
Pilot Strength
92
T_ADD_R
92
T_DROP_R
C
B
A
D
D
B
A
C
Time
88
Pilot Use in Active Set
90
Pilot ID
A
B
C
D
Start of Rescue
Successful Rescue
Optional Transmission of PSMM's
C
AC
AB
B
BD
D

FIG. 9

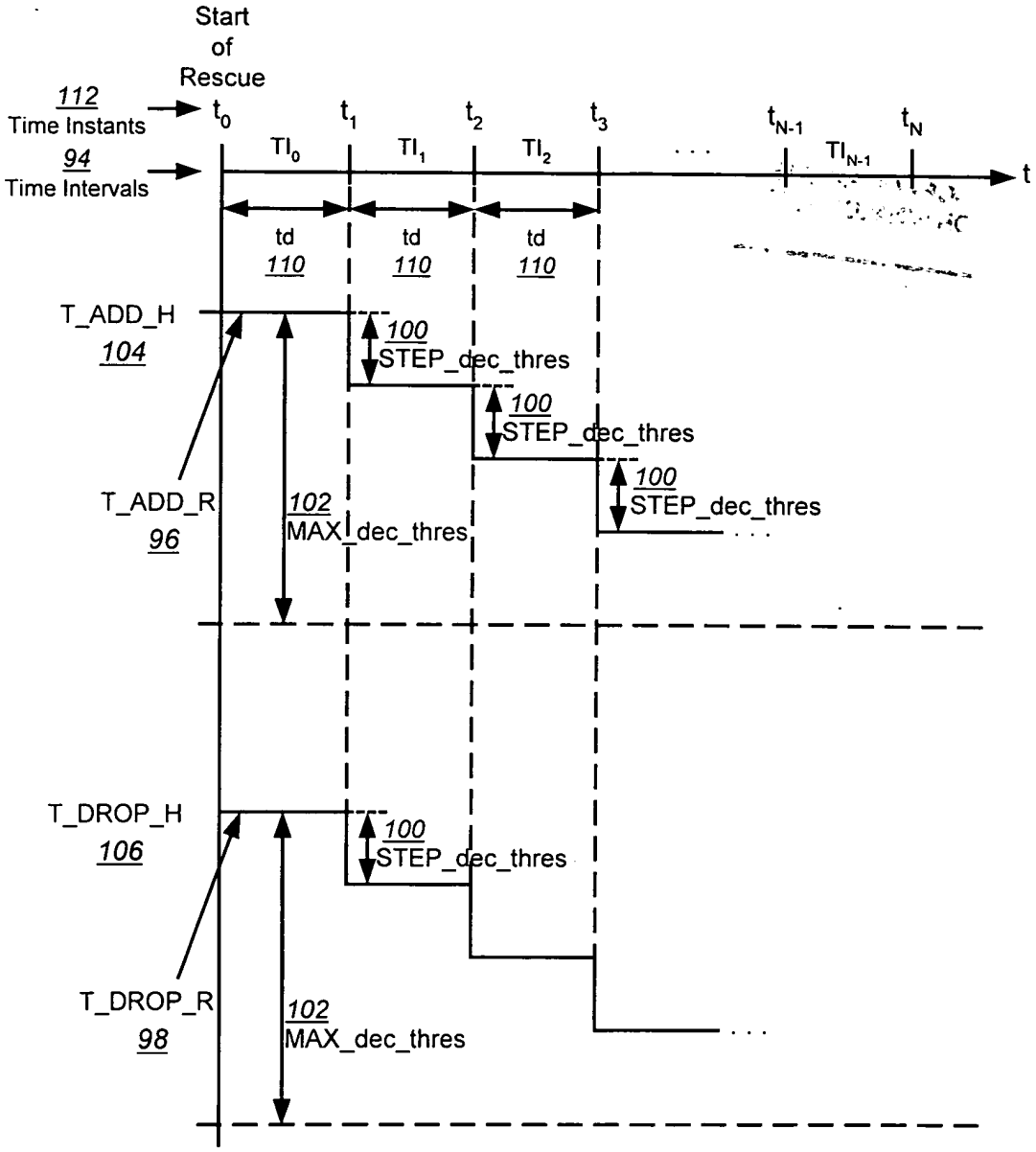

Start of Rescue
112
Time Instants
94
Time Intervals
t_0
t_1
t_2
t_3
t_{N-1}
t_N
TI_0
TI_1
TI_2
TI_{N-1}
t
td
110
T_ADD_H
104
100
STEP_dec_thres
T_ADD_R
96
102
MAX_dec_thres
T_DROP_H
106
T_DROP_R
98

FIG. 10

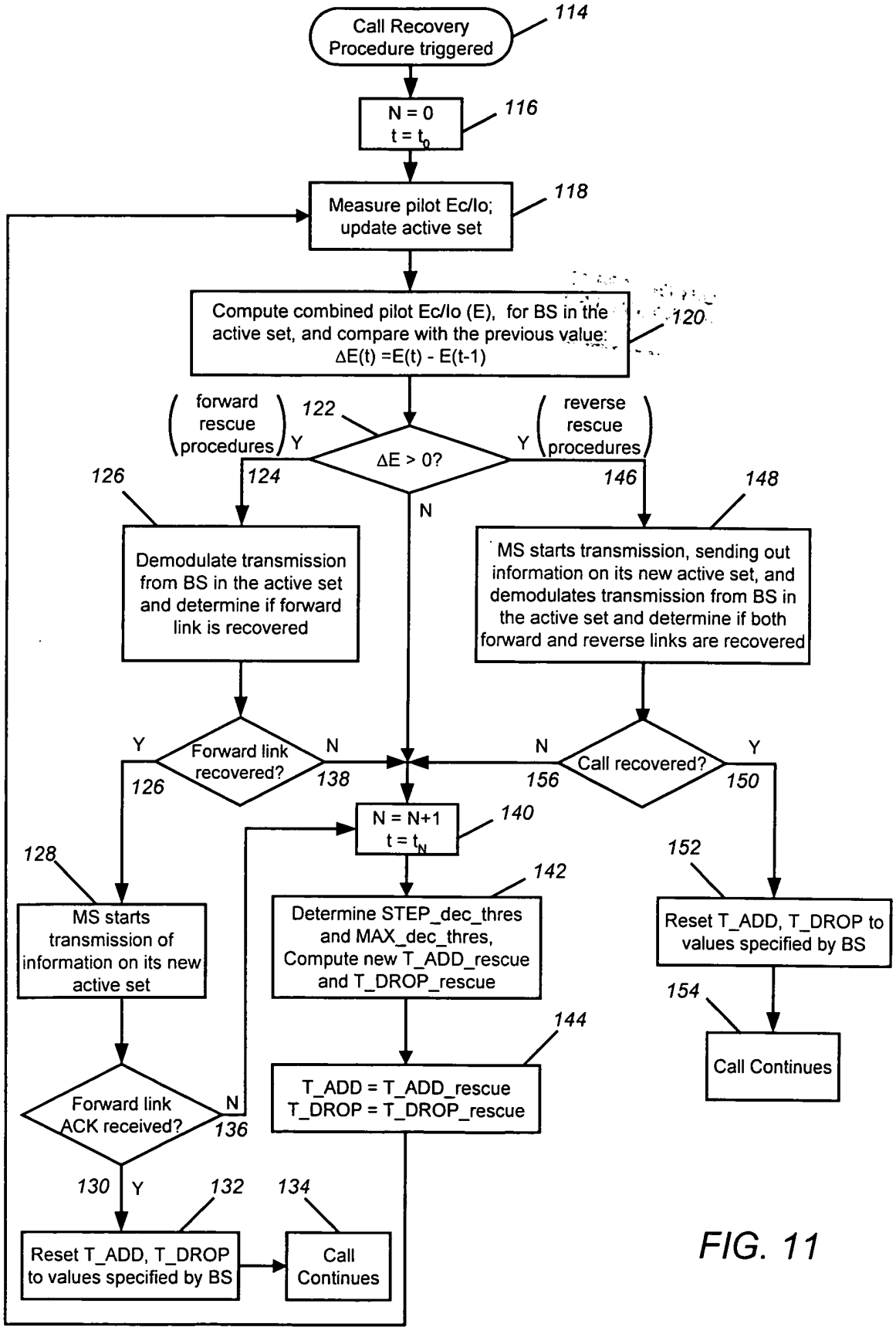

Call Recovery Procedure triggered
114
N = 0
t = t0
116
Measure pilot Ec/Io; update active set
118
Compute combined pilot Ec/Io (E), for BS in the active set, and compare with the previous value:
ΔE(t) =E(t) - E(t-1)
120
forward rescue procedures
122
ΔE > 0?
reverse rescue procedures
Y
N
124
126
146
148
Demodulate transmission from BS in the active set and determine if forward link is recovered
MS starts transmission, sending out information on its new active set, and demodulates transmission from BS in the active set and determine if both forward and reverse links are recovered
Forward link recovered?
Call recovered?
138
156
150
N = N+1
t = tN
140
128
142
152
MS starts transmission of information on its new active set
Determine STEP_dec_thres and MAX_dec_thres, Compute new T_ADD_rescue and T_DROP_rescue
Reset T_ADD, T_DROP to values specified by BS
154
144
Call Continues
T_ADD = T_ADD_rescue
T_DROP = T_DROP_rescue
Forward link ACK received?
136
130
132
134
Reset T_ADD, T_DROP to values specified by BS
Call Continues

FIG. 11